KOCHANOVA, Ya.B.

From pages of journals. TSement 24 no.1:29-30 Ja-Fe '58.
(MIRA 11:4)

(Bibliography--Cement)

AUTHOR: Kochanova, Ye.B. 101-58-3-11/12

TITLE: On the Pages of Journals (Po stranitsam zhurnalov)

PERIODICAL: Tsement, 1958, Nr 3, p 32 (USSR)

ABSTRACT: This articles deals with two items taken from two foreign scientific journals: 1) "A new Cement Plant in England which uses the Dry Production Method", 2) "World Cement Production in 1956".

1. Cement--Production 2. Scientific reports--Review

Card 1/1

AUTHOR: Kochanova, Ye.B. SOV-101-58-4-11/12

TITLE: In the Pages of Periodicals (Po stranitsam zhurnalov)

PERIODICAL: Tsement, 1958, Nr 4, pp 28-29 (USSR)

ABSTRACT: The author mentions 7 articles on cement from foreign periodicals.
There is one photo.

1. Cement--Bibliography 2. Bibliography--Cement

Card 1/1

AUTHOR: Kochanova, Ye.B. 30V-101-58-5-9/10

TITLE: In the Pages of Journals (Po stranitsam zhurnalov)

PERIODICAL: Tsement, 1958, Nr 5, pp 29-30 (USSR)

ABSTRACT: A total of 6 summaries of articles in foreign journals are given. The journals are Cement and Lime Manufacture, Zement-Kalk-Gips, Pit and Quarry, and Rock Products.

1. Literature 2. Cement--Applications

Card 1/1

AUTHOR: Kochanova, Ye.B. SOV/101-58-6-12/13

TITLE: From the Pages of Journals (Po stranitsam zhurnalov)

PERIODICAL: Tsement, 1958, Nr 6, pp 36-37 (USSR)

ABSTRACT: Four abstracts of articles from the journals "Rock Products" and "Zement-Kalk-Gips" on the installation of two cement plants in Canada and the USA and machinery for cement plants are here published. There is 1 photo.

Card 1/1

LUR'YE, Yu.S., Prinimali uchastiye: DRABKIN, O.S., insh.; KOCHANOVA, [illegible], insh., OKOROKOV, S.D., dotsent, kand.tekhn.nauk, retsenzent, nauchnyy red.; VAYNSHTEYN, Ya.M., insh., retsenzent; TIUTIUNIK, M.S., red.izd-va; RUDAKOVA, N.I., tekhn.red.; NAUMOVA, O.D., tekhn.red.

[Portland cement] Portlandtsement. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1959. 350 p. (MIRA 13:3)
(Portland cement)

15(6)

SOV/101-59-5-10/11

AUTHOR: Kochanova, Ye. B., Engineer

TITLE: From the Pages of the Periodicals

PERIODICAL: Tsement, 1959, Nr 5, pp 31 - 32 (USSR)

ABSTRACT: Four articles are listed with short descriptions of each. Correction: The authors of the article "About a Chain Curtain in the Rotary Kiln" published in Nr 4 of this Journal 1959, are S. Arutyunov and V. Kropotov .

Card 1/1

KOCHANOVA, Ye.B., inzh.

From the pages of journals. Tsement 26 no.1:31 Ja-F '60.
(Cement industries--Equipment and supplies)

KOCHANOVA, Ye.B., insh.; GNEF, E.M., insh.

From the pages of journals. TSement 26 no.2:31 Mr-Ap '60.
(MIRA 13:6)
(Cement plants—Equipment and supplies)

KOCHANOVA, YE.B., inzh.

From the pages of journals. TSement 26 no.3:32 My-Je '60. (MIRA 13:7)
(United States--Cement industry)

KOCHANOVA, Ye.B., inzh.

From the pages of journals. TSement 26 no.4:30-31 Jl-Ag '60.
(MIRA 13:11)
(United States--Cement plants)

KOCHANOVA, Z.V., assistent

Study of the adrenal cortex function in rheumatic fever patients during the course of the disease. Trudy Novosib.gos.med.inst. 27:259-269 '57. (MIRA 12:9)

1. Iz kafedry fakul'tetskoy terapii (zav.kafedroy prof. G.D. Zalesskiy) Novosibirskogo meditsinskogo instituta.
(RHEUMATIC FEVER) (ADRENAL CORTEX)

LEVINSKY, Ladislav; KOCHANOVSKA, Adela

Further contributions to the physical & chemical structure of tuberculous calculi. Sborn. lek. 59 no.1:30-36 Jan 57.

1. Klinika tuberkulosy, prednosta prof. Dr. Jaroslav Jedlicka a Ustav technicke fysiky CSAV, reditel Dr Jindrich Baskovsky, L. L. Katerinska 19, Praha 2.

(BCG VACCINATION, compl.
calcification of axillary lymph nodes, phys. & chem. properties (Cz))
(TUBERCULOSIS, LYMPH NODES, pathol.
calcification of axillary lymph nodes after BCG vacc., phys. & chem. properties (Cz))

KOCHENOVSKA, A.

X-Ray Method for Measuring Anisotropy of Thermal Expansion of Metals. A. Kochanowska (Czy. Fiz., Prague, 1956, (4), 0-11; Appl. Mechanics Rev., 1957, 1, 513).

K. applies the method developed previously (see preceding abstract). Anisotropy of expansion-coeff. measurements are useful not only for studying thermal behaviour but also for measuring deviations from Hooke's law in different directions in a crystal material. Precision is obtained in the back-reflection method by using different wave-lengths of X-rays in the different crystallographic directions, so that reflection angles close to 90° are always obtained. Results are given for pure Al, commercial Al, Fe, and Cr steel. Measurable anisotropy is observed in all cases but the first. Mean expansion coeff. determined by this method are systematically less than those obtained by opt. methods. This may be because the latter depend on the binding material between individual microcrystals. There seems to be a close connection between thermal anisotropy and additional alloying of other elements for metals of cubic structure.

Immediate source clipping

KOCHANOVSKA, A.; KRAUS, I.; MARSAK, Z.

On X-ray measurement of macroscopic stresses in sintered carbides. Chekhosl fiz zhurnal 13 no. 6: 418-423 '63.

1. Ustav fyziky pevnych latek, Ceskoslovenska akademie ved, Praha (for Kochanovska)
2. Fakulta technicke a jaderne fyziky, Ceske vysoke uceni technicke, Praha (for Kraus and Marsak)

KOCHANOVSKA, A.

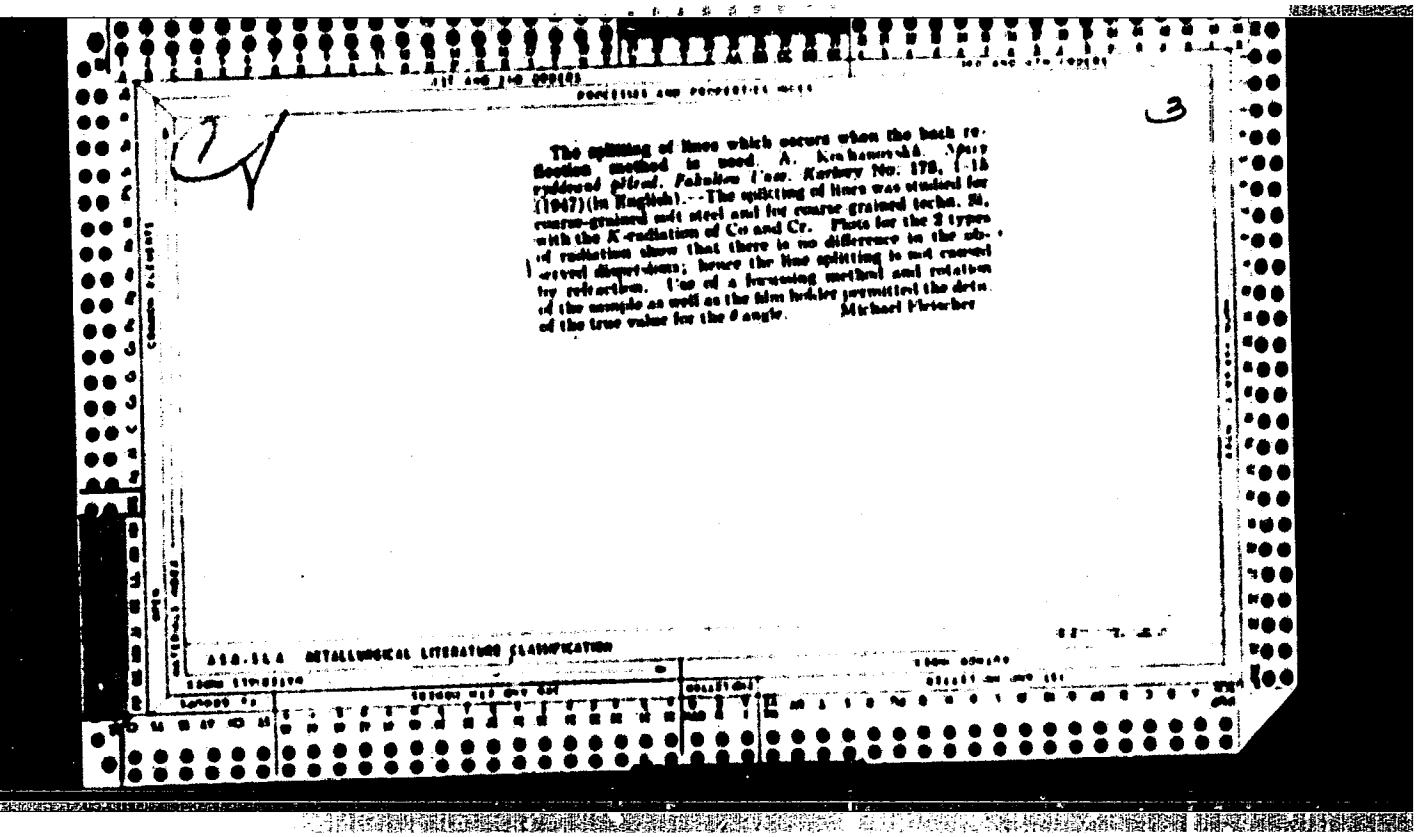
Effect of plastic deformation on the extinction character and residual lattice defects in pure powder aluminum. Cheskhosl fiz zhurnal 13 no.5:335-349 '63.

1. Ustav fyziky pevnych latek, Ceskoslovenska akademie ved, Praha.

KOCHANOVSKA, A.

Measurement of diffraction intensity of polycrystalline materials, particularly at high Bragg angles. Chekhosl fiz zhurnal 14 no.4:267-270 '64.

1. Institute of Solid State Physics, Czechoslovak Academy of Sciences, Prague 6, Cukrovarnicka 10.



The splitting of lines which occurs when the back reflection method is used. A. Kochendörfer. Spaltung gebeugter Linien. *Fabulae Univ. Kantoris* No. 178, 1-15 (1947)(in English).--The splitting of lines was studied for coarse-grained soft steel and for coarse grained tocha. Si, with the K-radiation of Co and Cr. Photo for the 2 types of radiation show that there is no difference in the observed displacement; hence the line splitting is not caused by refraction. Use of a focussing method and rotation of the sample as well as the film holder permitted the determination of the true value for the θ angle. Michael Fleischer

MA

"X-Ray Method for Determination of Anisotropy of Crystals in Polycrystalline Substances. A. Kochanowska (Acta Phys. Polonica, 1948, (3), 1 81; Appl. Mechanics Rev., 1951, 4, 510).—K. presents a method of determining anisotropy under internal or external stress of normally isotropic polycryst. materials. The method depends upon the use of X-rays of different wave-lengths, so that reflection angles close to 90° can always be used, thus obtaining high accuracy. The method is useful because it is not necessary to grow large single crystals. Experimental technique, sources of radiation, and data are given for α-brass, Fe, and Al.

MA

4

*X-Ray Method for [illegible] Anisotropy of Thermal Expansion of Metals. A. Kochanovska (Czech. J. Phys., 1960, (4), 6 11; *Appl. Mechanics Rev.*, 1961, 6, 5101). K. applies the method developed previously (see preceding abstract). Anisotropy of expansion coeff. measurements are useful not only for studying thermal behaviour but also for measuring deviations from Hooke's law in different directions in a stressed material. Precision is obtained in the back-reflection method by using different wave-lengths of X rays in the different crystallographic directions, so that reflection angles close to 90° are always obtained. Results are given for pure Al, commercial Al, Fe, and Cr steel. Measurable anisotropy is observed in all cases but the first. Mean expansion coeff. determined by this method are systematically less than those obtained by opt. methods. This may be because the latter depend on the binding material between individual microcrystals. There seems to be a close connection between thermal anisotropy and additional alloying of other elements for metals of cubic structure.

KOCHANOVSKA A.

Precise determination of lattice parameters of polycrystalline materials by means of X-rays. p. 155
(Czechoslovak Journal Of Phusics, Vol. 1, no. 3/4, 1952) Czechoslovakia

SO: Monthly List of East European Accessions, Vol. 2, #8, Library of Congress, August 1953, Incl.

KOCHANOVSKA, A.

KOCHANOVSKIYA
113

CZECH

548 133

/6133. The dir determination of lattice distortions (dislocations) in cold-worked materials with various grain and crystallite sizes. A. KOCHANOVSKÁ. Letter in *Czech. J. Phys.*, 2, 141 [English] [illegible]

In the powder photograph of a crystalline material with dislocations, the intensity of high-angle lines is increased by a factor $C \exp[-2B'(\sin^2\theta/\lambda^2)]$, where $B' = (8/3)\pi^2\bar{\theta}_i^2$, $\bar{\theta}_i^2$ being the mean-square displacement of atoms from their normal positions. $\bar{\theta}_i^2$ can be found by comparing the ratios of the integrated intensities of a pair of lines with different θ angles for dislocated and non-dislocated specimens. If the latter is not available an estimate of $\bar{\theta}_i^2$ can still be obtained from a single specimen from

$$\bar{\theta}_i^2 = 3\log\left(\frac{I_{h_1k_1l_1}}{I_{h_2k_2l_2}} \times \frac{Q_{h_2k_2l_2}}{Q_{h_1k_1l_1}}\right) \div \left(16\pi^2\frac{\sin^2\theta_2 - \sin^2\theta_1}{\lambda^2}\right)$$

where I is the observed integrated intensity and Q is the calculated specific reflecting power (including the temperature factor).

A. L. MACKAY

BB

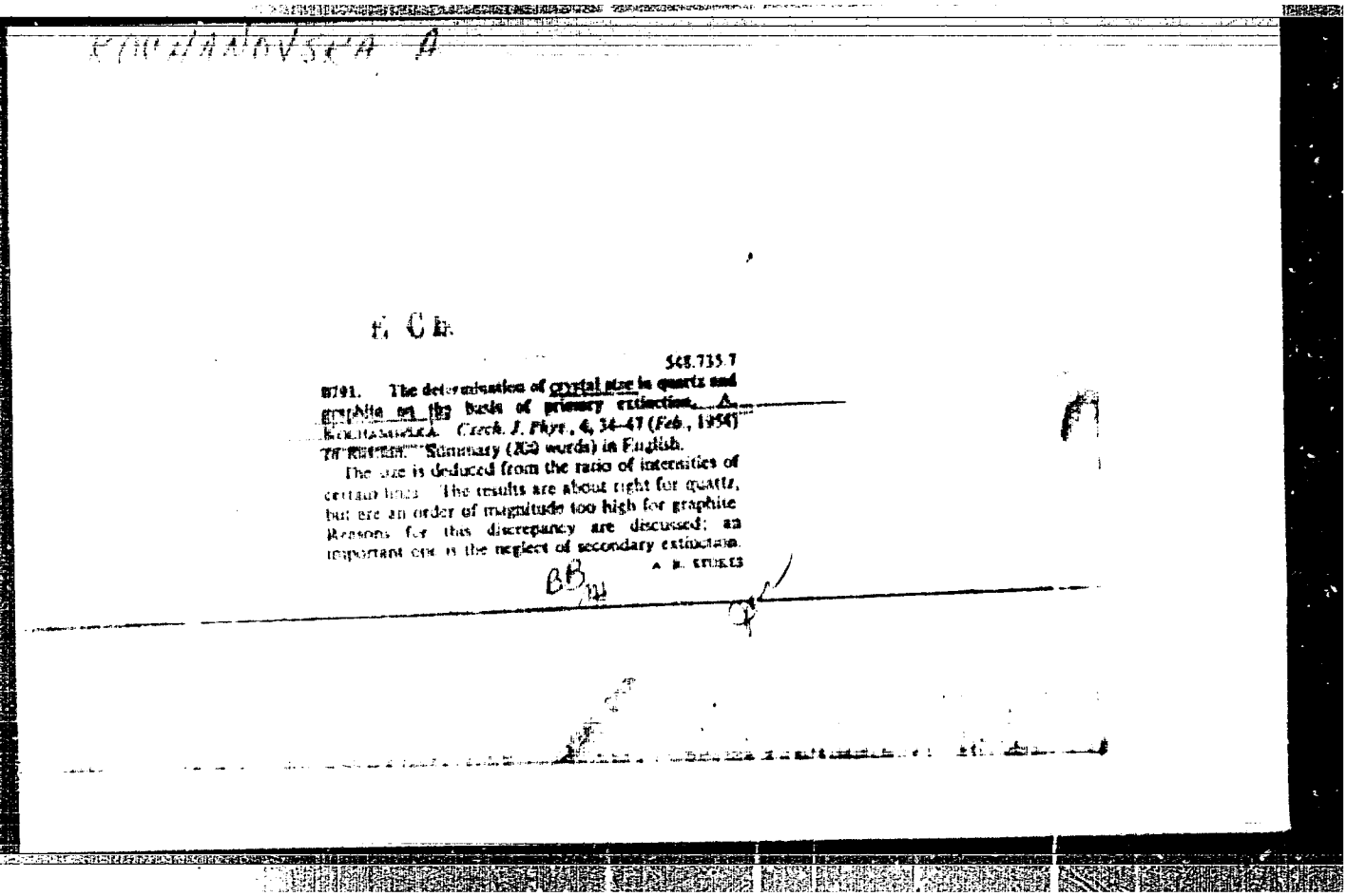
KOCHANOVSKA, Adela.

On the possibility of determining crystal size of crystallites and powder samples in the range 10^{-5} and 10^{-3}cm by means of X rays [with English summary]. Chekh.fiz.zhur. 3 no.1:53-71 Mr '53. (MLRA 7:6)

1. Institute of Technical Physics, Prague. (Crystallography)

Application of X-ray methods in powder metallurgy and in related topics. Adda Jachanowská. *Pokroky prášk. met., Sborník, konf., 1953*, 69–77 (Pub. 1954).—X-ray powder diagrams make it possible to recognize the presence of impurities, oxidation, and of phase changes. Examples are presented of the detection of 2% W_2C in WC, of TiO in TiC, of the deta. of TiC in mixt. of TiC and WC, and of the phase changes of graphite in electrographite.

Distr: 4E3d/4E2c



548.735.7

8791. The determination of crystal size in quartz and graphite on the basis of primary extinction. Δ [illegible] *Czech. J. Phys.*, 4, 34–47 (*Feb.*, 1954) In Russian. Summary (250 words) in English.

The size is deduced from the ratio of intensities of certain lines. The results are about right for quartz, but are an order of magnitude too high for graphite. Reasons for this discrepancy are discussed; an important one is the neglect of secondary extinction.

A. E. STUBBS

KOCHANOVSKA, A.

"Roentgenometric Diffraction Determination of Residual Stresses in Semicrystalline Materials, Especially Metals." p. 320,
(CZESKOSLOVENSKA CASOPIS PRO FYSIKY, Vol. 4, No. 3, June 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4
No. 5, May 1955, Uncl.

KOCHANOVSKA, ADELA

Category : CZECHOSLOVAKIA/Solid State Physics - Structure of Deformable Materials E-8

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 5731

Author : Kochanovska, Adela
Title : Determination of the Defects of the Third Kind and of the Value of the Coherent Regions of the Lattice in Powdered Tungsten.

Orig Pub : Ceskosl. casop. fys., 1954, 4, No 4, 439-445

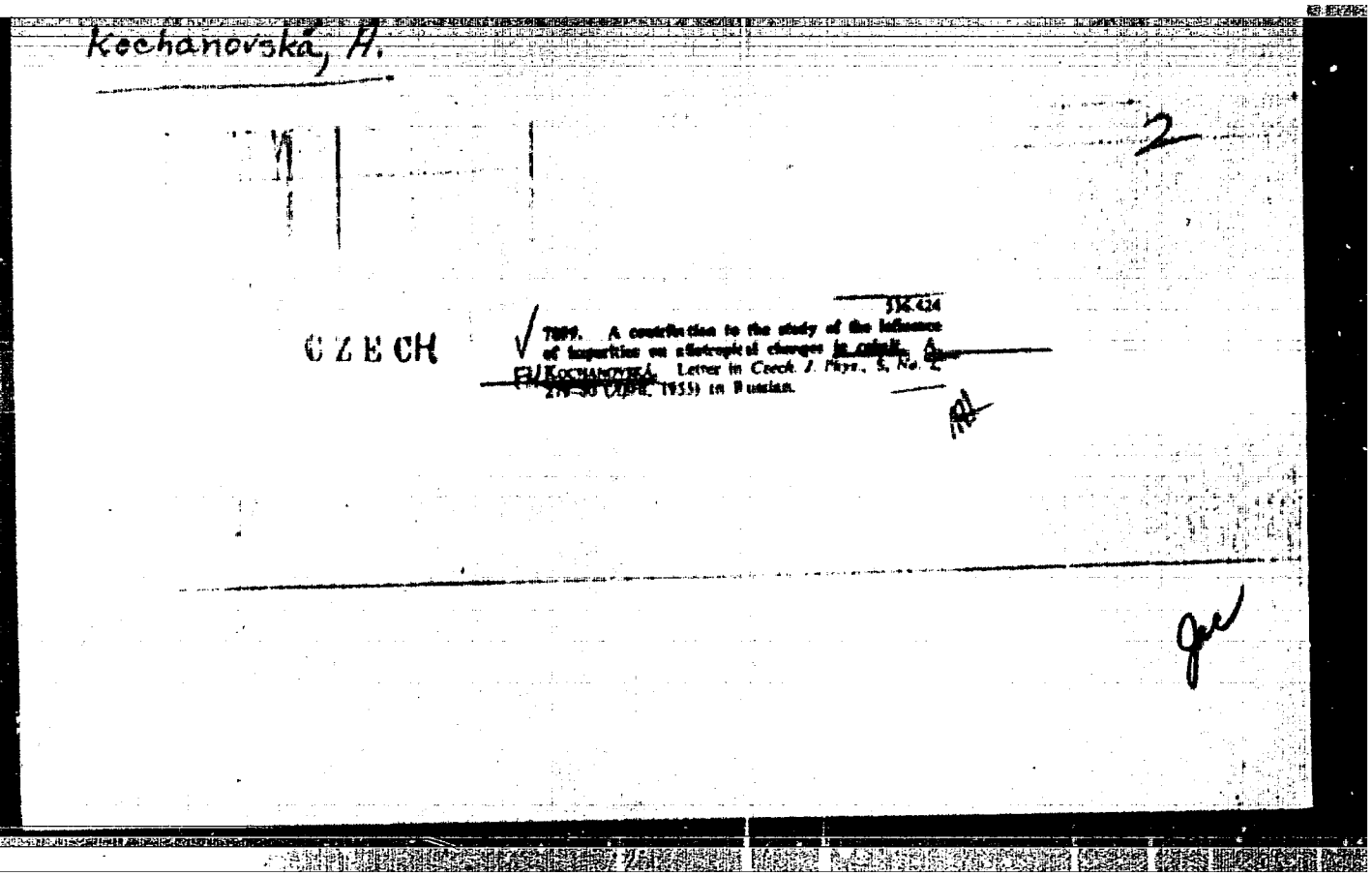
Abstract : See Referat Zhur Fizika, 1956, 31766.

Card : 1/1

KOCHANOVSKA, A.

"Determining the Crystallic and Amorphous Parts of Cellulose." p. 84, Praha, Vol. 9, no. 4, Apr. 1954.

SO: East European Accessions List, Vol. 3, No. 9, September 1954, Lib. of Congress



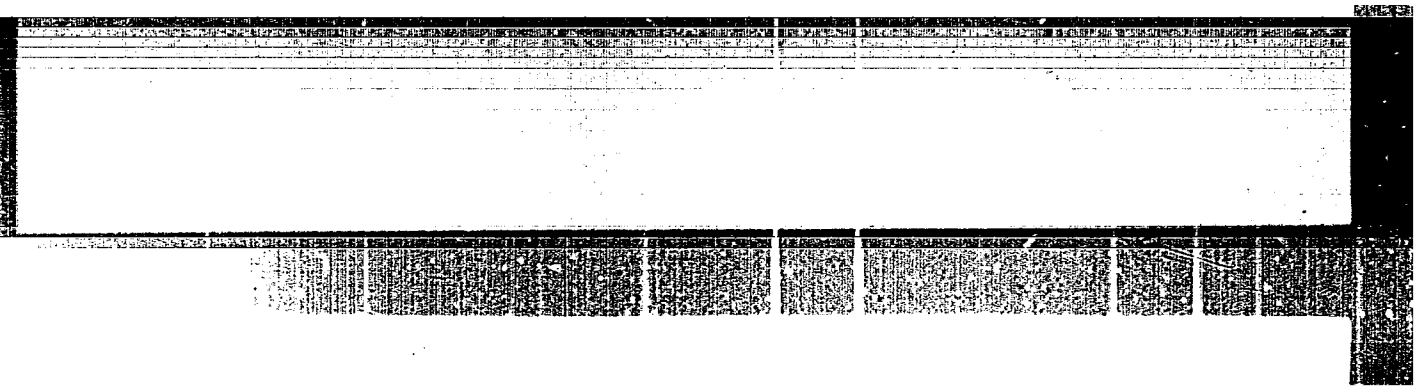
Kochanovská, A.

2

CZECH

537.424

7889. A contribution to the study of the influence of impurities on electrophysical changes in cuprit. A. KOCHANOVSKÁ. Letter in Czech. J. Phys., 5, No. 2, 219–20 (1955) in Russian.

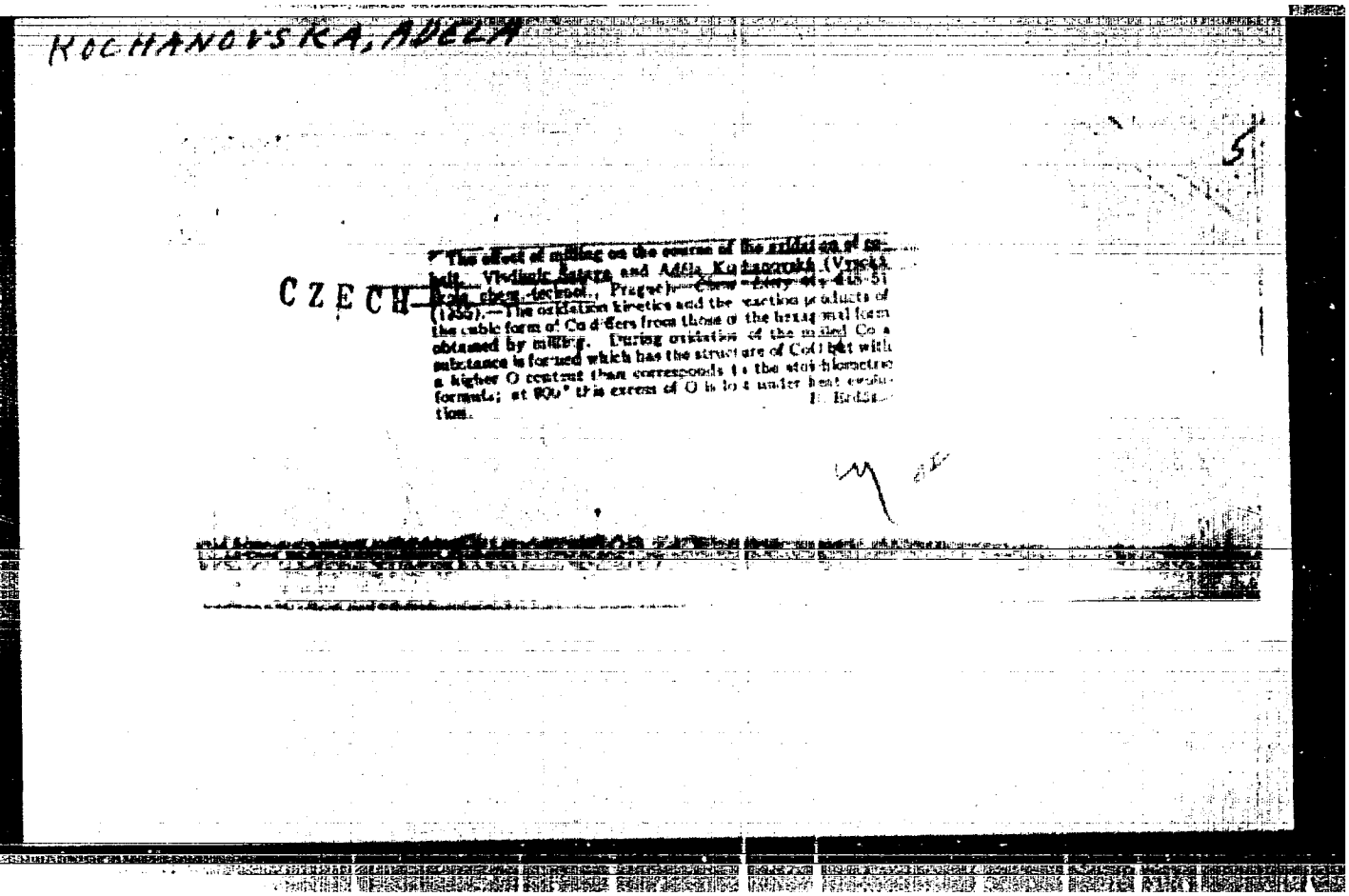


APPROVED FOR RELEASE: 09/18/2001 CIA-RDP86-00513R000723420016-6"

KUCHANOVSKÁ, Adela

The effect of milling on the course of the oxidation of cobalt. Vladimír Šatava and Adéla Kuchanovská. *Collection Czechoslov. Chem. Communs.* 30, 12 3-10(1965)(in German).—See *C.A.* 49, 11834e. (1) AC

E. I. C.



KOCHANOVSKA, ADELA

5

CZECH

The effect of milling on the course of the oxidation of co... Vladimír Šatava and Adéla Kochanovská (Výzk. ú... Praze [illegible] (1956). — The oxidation kinetics and the reaction products of the cubic form of Co differs from those of the hexagonal form obtained by milling. During oxidation of the mixed Co a substance is formed which has the structure of Co_3O_4 but with a higher O content than corresponds to the stoichiometric formula; at 900° this excess of O is lost under heat evolution. I. Bubna

7

KOCHANOVSKA, A.

CZECHOSLOVAKIA/Solid State Physics - Structural Crystallography E-3

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 890

Author : Kochanovska, Adela

Inst : Institute of Technical Physics, Czechoslovak Academy of Sciences, Prague.

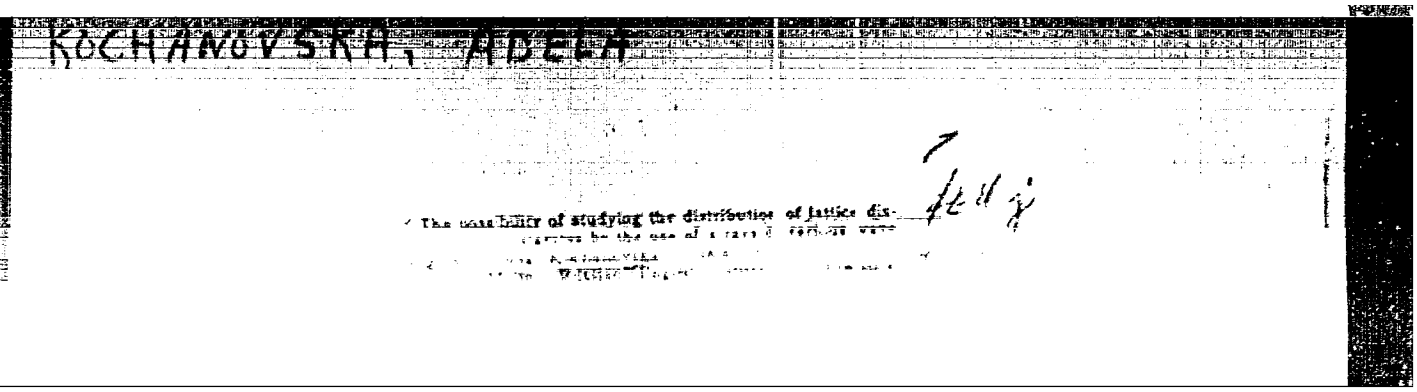
Title : Possibility of Investigating the Distribution of Lattice Defects in Crystals with the Aid of X-rays of Different Wavelengths.

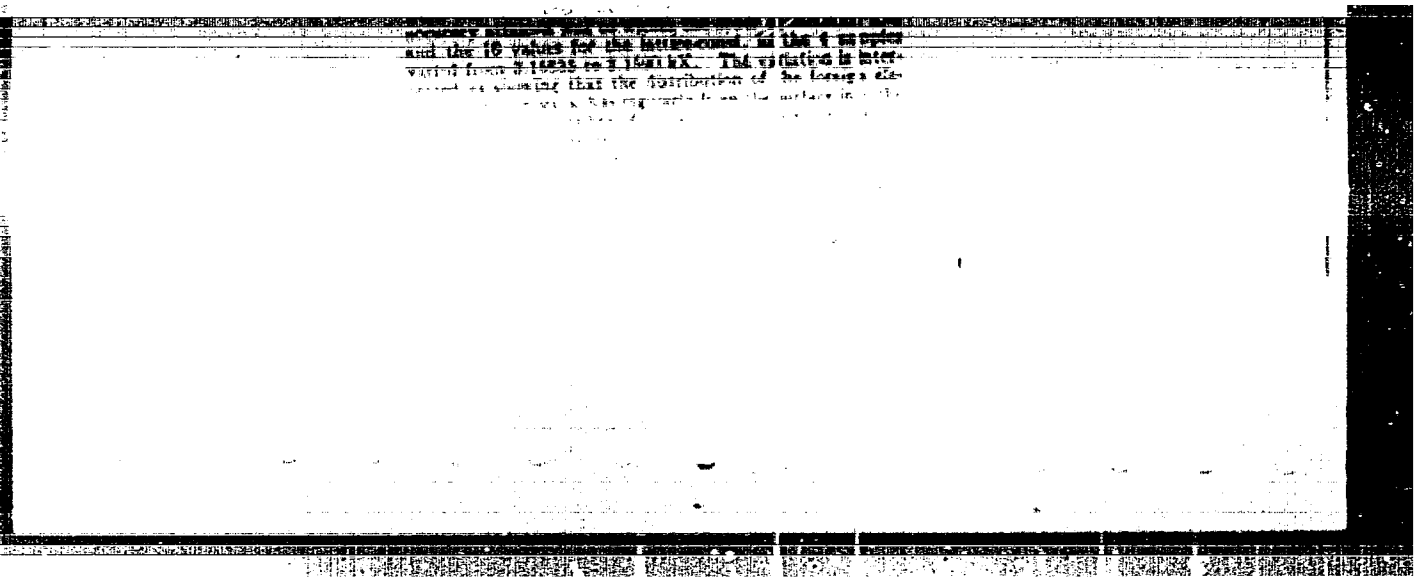
Orig Pub : Askosl. casop. fyx., 1957, 7, No 2, 162-166

Abstract : X-ray measurements were made of the lattice constants of specimens made of W + 0.5% O, W + 0.5% O + 1% Cu, W + 0.5% O + 1% Ni, and W + 0.5% O + 1% Ni using iron, cobalt, copper, and molybdenum radiation. The method of backward photography with an aluminum standard was used. The dependence of a on the hardness of the radiation was established.

Card 1/2

Card 2/2





KOCHANOVSKA, ADELA

CZECHOSLOVAKIA/Solid State Physics - Structure of Deformed Materials E-9

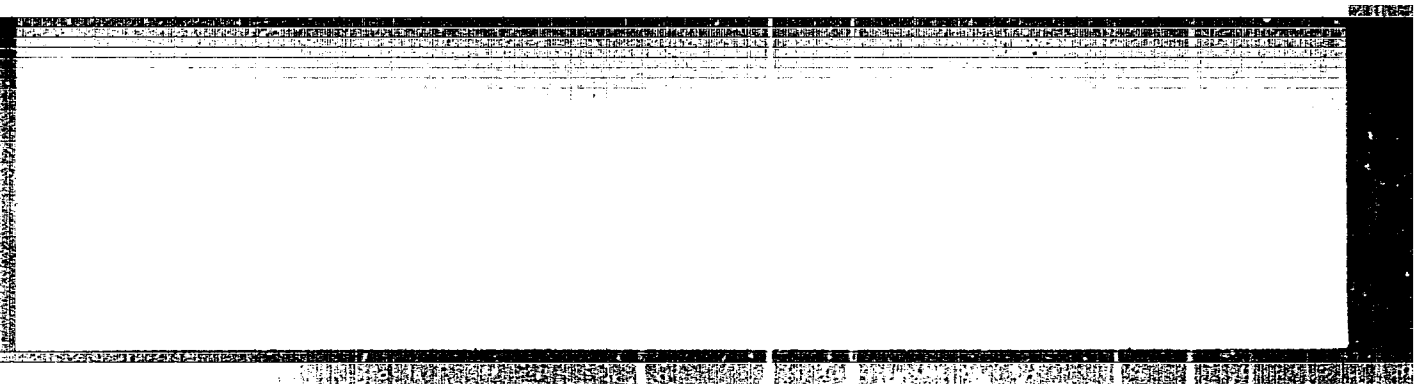
Abs Jour : Ref Zhur - Fizika, No 6, 1958, No 13253

Author : Kochanovska Adela
Inst : Institute of Technical Physics, Czechoslovak Academy of Sciences, Prague Czechoslovakia.
Title : The X-ray Study of the Fine Structure of Ground Powdered Nickel

Orig Pub : Chekhosl. fiz. zh., 1957, 7, No 4, 455-467

Abstract : The change in the fine structure of powdered nickel during the grinding process has been investigated. Observations of the changes that occur in the crystalline lattice of nickel during the grinding process has been effected by the method of X-ray photograph from a flat layer of powder. A study was made of the changes in the width, intensity, and position of the maximum of the diffraction line. Specimens for X-ray photography were selected after 8, 16, 24, 48 and 96 hours of grinding. Comparing the course of the dependence of the intensity of the diffraction lines and of the lattice parameter

Card : 1/2



APPROVED FOR RELEASE: 09/18/2001 CIA-RDP86-00513R000723420016-6"

AUTHOR: Kochanovská, Adéla CZECH/37-59-3-1/29

TITLE: Study of the Influence of the Asymmetry of the $K\alpha_1$ X-ray Emission Lines of Cobalt and Copper on the Exact Measurement of Lattice Parameters

PERIODICAL: Československý časopis pro fysiku, 1959, Nr 3, pp 223-234

ABSTRACT: Like most X-ray emission lines, the Kα lines which are commonly used for the measurement of lattice prameters have an asymmetric(3) profile, i.e. the wavelength at maximum intensity is not identical with the wavelength at half the intensity. The tabulated wavelengths are those of the maxima, while the location of the diffraction lines is measured at their "half intensities". The asymmetry of $K\alpha_1$ of Co is larger than of Cu and these lines were used in the present investigation for the determination of the lattice constants of annealed powders of Al, Ag and Au. The lattice constants were measured by a back-reflection method with focusing arrangements due to Seemann and Bohlin. The registration was on a flat photographic film and the lines were measured with a microphotometer. The temperature of the samples was thermostatically controlled. The lattice

Card1/6

Study of the Influence of the Asymmetry of the $K\alpha_1$ X-ray Emission Lines of Cobalt and Copper on the Exact Measurements of Lattice Parameters

constant of each sample was measured four times with $K\alpha_1$ of Co and four times with Cu, $K\alpha_1$. The results were corrected for the different depth of penetration of the X-rays and for thermal expansion. As there is some uncertainty about corrections for refraction (1), two limits were considered: no correction and maximum correction according to the equation:

$$\vartheta' - \vartheta = \delta \cdot \sec \vartheta \cdot \operatorname{cosec} \vartheta \qquad (2)$$

where ϑ' and ϑ are the apparent and the real angle of reflection and $\delta = Ne^2\lambda^2/2\pi mc^2$. N is the density of electrons, c - the velocity of light, m - the mass of the electron and e - its charge. The corresponding corrections to the lattice constants were between $0.1.10^{-4}$ A.U.

Study of the Influence of the Asymmetry of the $K\alpha_1$ X-ray Emission Lines of Cobalt and Copper on the Exact Measurement of Lattice Parameters

(Al, Cu radiation) and $2.8.10^{-4}$ A.U. (Au, Co radiation). Table 1 shows the values of a, as determined by $K\alpha_1$ of cobalt and copper. In table 1a, no correction for refraction is made, while the results in Table 1b are corrected according to Eq (2).

In order to evaluate these results, the difference in a, that might arise from the asymmetry of the spectral lines, has been calculated. If $\lambda' = \lambda - \Delta\lambda$ is the tabulated, i.e. incorrect wavelength used for the determination of the lattice parameter, we obtain $a' = a - \Delta a$:

$$\Delta a' [Co] - [Cu] = a \left[\left(\frac{\Delta\lambda}{\lambda} \right)_{[Cu]} - \left(\frac{\Delta\lambda}{\lambda} \right)_{[Co]} \right] \qquad (3) .$$

In this equation, we may replace λ by λ'.

Thus, it remains to determine $\Delta\lambda$ from the measured

Study of the Influence of the Asymmetry of the $K\alpha_1$ X-ray Emission Lines of Cobalt and Copper on the Exact Measurement of Lattice Parameters

asymmetry of the relevant spectral lines. If $\Delta\lambda$ is calculated from the asymmetry factor i (see Figure 2 and Eqs (4) and (5)) and broadening of the diffraction lines is neglected, then $\Delta a' [Co] - [Cu] = -1 \cdot 10^{-4}$ A.U. for $a = 4$ A.U.

The broadening of the diffraction lines can be taken into account by the following considerations. Let $J(\lambda)$ (Eq 6) represent the asymmetrical profile of the spectral line. Let each element of the spectral line be symmetrically broadened in the diffraction line by a Gaussian factor, so that the resultant profile is $J^{obs}(\lambda) = c.h(\lambda)$, where $h(\lambda)$ is given by:

$$h(\lambda) = \int_{-\infty}^{+\infty} g(\zeta) f(\lambda - \zeta) d\zeta \qquad (7)$$

Card4/6

Study of the Influence of the Asymmetry of the $K\alpha_1$ X-ray Emission Lines of Cobalt and Copper on the Exact Measurement of Lattice Parameters

and c is a normalisation constant. Figures 3 and 4 show the displacements of the centre S and the maximum V of the profile of $K\alpha_1$ (Co) and $K\alpha_1$ (Cu) as calculated from Eq (7). b is the width of the profile.

Taking all this into consideration, $\Delta a = 1.6 \cdot 10^{-4}$ A.U. to $1.8 \cdot 10^{-4}$ A.U. for $a = 4$ A.U. It is shown that a correction due to dispersion need not be considered. The value thus calculated for $\Delta a_{[Co]-[Cu]}$ is in fair agreement with the experimental values in Table 1b. It seems plausible, therefore, to assume that the observed differences in lattice parameters measured by various wavelengths of X-rays can be accounted for by differences in the asymmetry of the spectral lines employed.

CZECH/37-59-3-1/29

Study of the Influence of the Asymmetry of the $K\alpha_1$ X-ray Emission Lines of Cobalt and Copper on the Exact Measurement of Lattice Parameters

There are 6 figures, 1 table and 9 references, of which 3 are Czech, 1 French, 1 international, 1 Soviet and 3 English.

ASSOCIATION: Ústav technické fysiky ČSAV, Praha (Institute of Technical Physics of the Czech Ac.Sc., Prague)

SUBMITTED: August 8, 1958

✓

Card 6/6

AUTHOR: Kochanovská, Adéla CZECH/37-59-3-2/29

TITLE: The Influence of the Spectral Asymmetry of X-ray Emission Lines on the Results of Studying Defects in Crystals by X-rays of Different Wavelengths

PERIODICAL: Československý časopis pro fysiku, 1959, Nr 3, pp 235-240

ABSTRACT: In a previous paper (Ref 1), the author studied defects in crystals by measuring the lattice parameters of powdered samples of tungsten with x-rays of varying "hardness". The samples contained impurities, particularly in their surface regions and the variation in the measured lattice parameter with the "hardness" of the X-rays showed the distribution of impurity. If the samples were sintered and annealed, this variation was expected to disappear. This expectation was not entirely fulfilled and a certain difference between the lattice parameter measured by softer X-rays and that measured by harder X-rays remained even in the annealed specimens. In view of the author's recent paper (Ref 3) on the influence of the asymmetry of X-ray spectral lines on the determination of lattice constant, the results of Ref 1 have been revised. It is shown in the present paper that the differences in lattice parameters, as measured by various wavelengths of

Card1/2

CZECH/37-59-3-2/29

The Influence of the Spectral Asymmetry of X-ray Emission Lines on the Results of Studying Defects in Crystals by X-rays of Different Wavelengths

X-rays, disappear for the homogeneous sample if the correction due to asymmetry (Ref 3) of the spectral lines is taken into consideration. The differences for the samples containing non-homogeneous distributions of impurities remain qualitatively the same as in Ref 1, although the correction for asymmetry reduces the magnitude of the differences. There are 2 figures; 2 tables and 8 references, of which 2 are Czech, 1 Soviet, 1 French, 1 international and 3 English.

ASSOCIATION: Ústav technické fysiky ČSAV, Praha (Institute of Technical Physics, Czech Ac.Sc., Prague)

SUBMITTED: August 16, 1958

Card 2/2

The influence of the asymmetry of the K_{α} X-ray emission lines of cobalt and copper on accurate measurements of lattice parameters. A. Adela Kochanowská (Czechoslov. Acad. Sci., Prague). *Czechoslov. J. Phys.* 9, 348-60(1959)(in English).—K. shows by accurate measurements of the lattice parameter of Al, Ag, and Au by K_{α} radiation of Cu and Co that the values detd. by the radiation of Co are systematically lower than those detd. by the radiation of Cu. A semi-quant. analysis of the influence of spectral asymmetry on the detn. of the parameter from x-ray diffracting lines is carried out, and it is proved that this influence is defined not only by the index of asymmetry of the emission line but also by the broadening of the corresponding diffraction line. From this analysis it follows that the differences in the parameter measured, when using radiation of Co and Cu, can be explained by the influence of the spectral asymmetry of the emission lines K_{α} of these radiations.

A. Kremheller

Z/055/62/012/003/011/011
1045/1245

AUTHOR: Kochanovská, A.

TITLE: The influence of etching on the $\gamma \rightarrow \alpha$ transformation in manganese steel

PERIODICAL: Chekhoslovatskiy Fizicheskiy Zhurnal, v. 12, no. 3, 1962, 236-238

TEXT: Samples of manganese steel were left at 1050°C for 1 hour and then quenched in oil at over a rate 100,000°C per hour, in order to obtain a pure γ-phase .They were then cut, polished, and investigated by means of X-rays. Only austenite diffraction lines were observed. After etching with a solution consisting of: 1 part HCl + 2 parts HNO_3 + 3 parts glycerine, the diffraction lines of martensite appeared. The explanation is that cutting with a bakelite bound disc causes small deformation but raises the temperature and austenite is conserved. At the same time the cutting process causes considerable microscopic and macroscopic strains. Etching changes the strain situation and the unstable crystallites undergo a $\gamma \rightarrow \alpha$ transformation.

ASSOCIATION: Institut fiziki tverdogo tela ChSAN (Institute of Solid State Physics CzAS)

SUBMITTED: October 13, 1961

Card 1/1

Z/037/62/000/004/001/008
E197/E335

AUTHOR: Kochanovská, A.

TITLE: The use of X-ray diffraction tubes for projection microradiography

PERIODICAL: Československý časopis pro fysiku, no. 4, 1962, 319-326 + 2 plates

TEXT: Instead of the customary point source of radiation, which the author had difficulty in obtaining, a linear source derived from commercially available X-ray diffraction tubes made by "n.p. Chirana" was used. The author's camera is similar to that of B.M. Rovinskiy but the pinhole is larger and the screening disc is made of a 0.12 mm thick foil of eutectic Pb-Bi. The camera is both rotated and moved linearly in order to compensate for the linear source of radiation. Exposure is longer. The Pb-Bi foil remained opaque at 30 kV, 20 mA hard radiation. Magnification by primary projection was in the order of 60 and was further increased by optical means. Radiographs are reproduced of copper mesh (hole size 5 and 1 μ, total magnification 300X) and of aged foils made from supersaturated solution of Al-Zn

Card 1/2

The use of X-ray ....

(optical magnification 4 and 45X), the latter showing segregation of Zn. The author further provides proof for the little-known fact that the aperture of the camera can be larger than the dimension of the detail to be resolved and verifies experimentally her conclusions by measuring a tungsten wire of 12 μ with apertures of 4, 18 and 32 μ, obtaining a magnification of 50, 47 and 52 against 50 given by the geometry of the known dimensions. There are 7 figures.

ASSOCIATION: Ústav fyziky pevných látek ČSAV, Praha
(Institute for Solid-state Physics, ČSAV, Prague)

SUBMITTED: December 7, 1961

Card 2/2

L 1627-66 EWP(w)/EWP(t)/EWP(b) IJP(c) JD/EM

ACCESSION NR: AP5024355 CZ/0037/64/000/005/0419/0427

AUTHOR: Kochanovska, Adela; Marsak, Zlatek

TITLE: Use of the ratio method for determining the sum of the two principal stress components

SOURCE: Ceskoslovensky casopis pro fysiku, no. 5, 1964, 419-427

TOPIC TAGS: metal stress, aluminum, mechanical stress

ABSTRACT:
[Authors' English summary]: The possibility is considered of using the absolute "ratio" method for determining macrostresses in cubic, and practically elastic, isotropic metal materials instead of the usual method using calibrating material. A relation is derived giving the magnitude of the percentual error in determining the sum of the two principal stress components on the basis

Card 1/2

L 1627-66

ACCESSION NR: AP5024355

2

of constants of material in the unstressed state and magnitude. A numerical calculation for aluminum shows the possibility of using the ratio method for alloys based on aluminum.

Orig. art. has: 1 figure, 6 formulas, 3 tables.

ASSOCIATION: [Kochanovska] Ustav fyziky pevnych latek CSAV, Prague (Institute of Solid State Physics, CSAV); [Marsik] Fakulta jaderne a technicke fyziky CVUT, Prague (Faculty of Nuclear and Technical Physics, CVUT)

SUBMITTED: 18Feb63

ENCL: 00

SUB CODE: AS, NM

NR REF SOV: 000

OTHER: 004

JPRS

Card 2/2

L 33686-66 EWP(k)/EWP(t)/ETI IJP(c) JD/HW
ACC NR: AP6024251 SOURCE CODE: CZ/0034/65/000/010/0723/0729

AUTHOR: Dusek, Josef (Engineer); Kochanovska, Adela (Professor; Doctor); Wotruba, Karel (Doctor); Lasek, Jiri (Engineer)

ORG: [Dusek] Research Institute of Ferrous Metallurgy, Prague (Vyzkumny ustav hutnictvi zeleza); [Kochanovska; Wotruba; Lasek] Institute of Solid State Physics, CSAV, Prague (Ustav fyziky pevnych latek CSAV)

TITLE: Effect of inclusions on the initial permeability of hot-rolled transformer plates

SOURCE: Hutnicke listy, no. 10, 1965, 723-729

TOPIC TAGS: aluminum containing alloy, electric transformer, annealing, metallurgic furnace, ammonia

ABSTRACT: Hot-rolled transformer plates containing, respectively, 0.012 and 0.09 percent Al, annealed for a long time in a tunnel furnace at 820 to 840°C, were subjected to another refining in an atmosphere of pure H and cracked ammonia, at a temperature range of 700 to 1100°C. A relationship was found between the course of the initial permeability and the variations in the content and form of structural particles, particularly iron carbide, aluminum nitride and silicon nitride, in both the starting state and after refining. The effect of cracked ammonia on the heats with the higher Al content was found to be very detrimental. Orig. art. has: 3 figures and 3 tables. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 11, 13, 09 / SUBM DATE: none / ORIG REF: 001
UDC: 621.3.002.3: 669.14.018.583

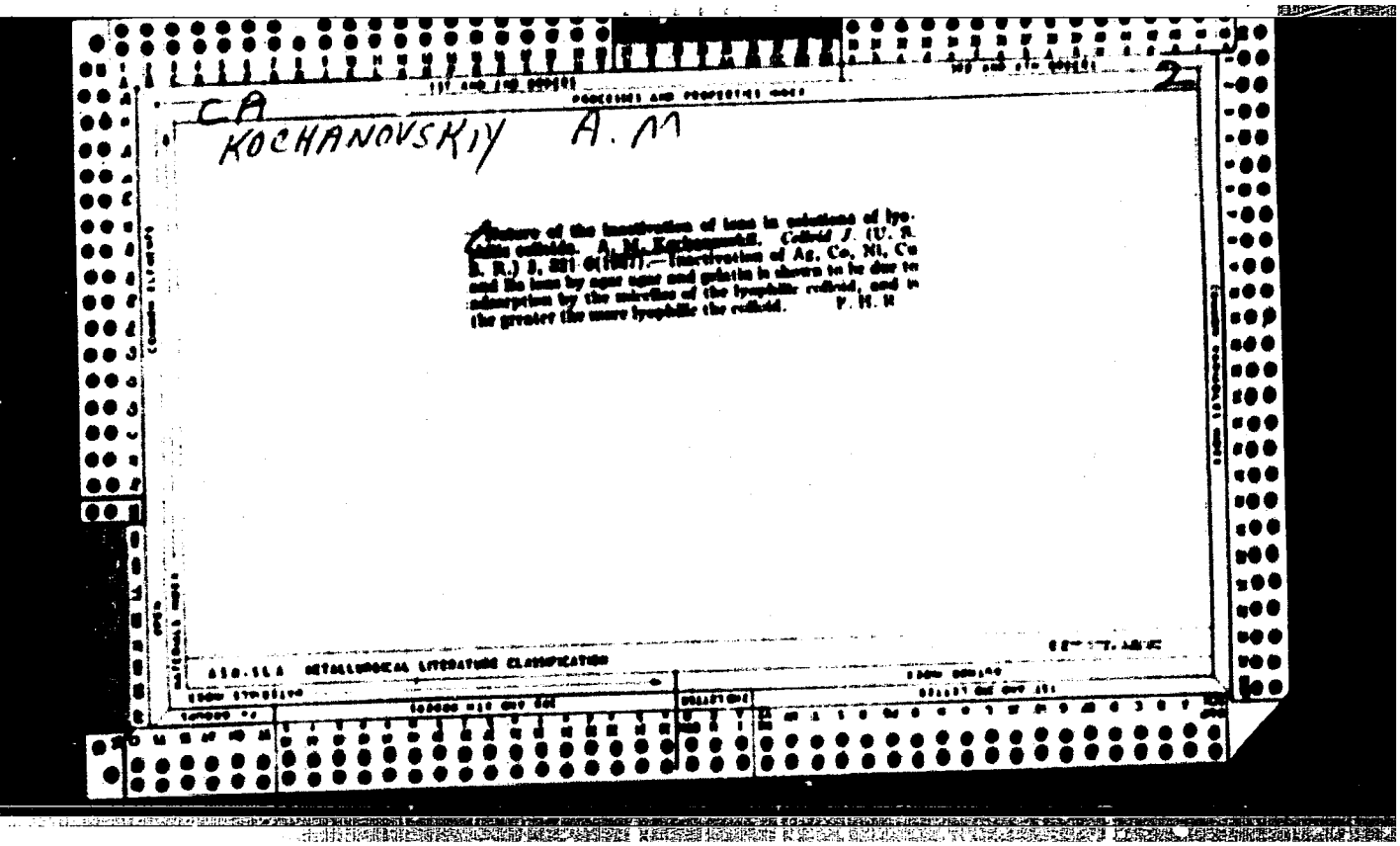
Card 1/1 PB

KOCHANOVSKIY

KOCANOVSKIJ [Kochanovskiy], kand.tehn. nauka; FEDER, inzenjer; KATLER, S.M., kand.tehn.nauka; KATALINIC-UDOVCIC, Palma, prof. (Zagreb)

Welding with electric arc which is rotating in magnetic field. Zavarivanje 4 no.7:138-142 S '61.

1. Visoka tehnicka skola u Zagrebu, Zagreb (for Katalinic-Udovcic).



KOCHANOVSKIY, B. D.

Technology

(Hydraulics of navigable locks) Moskva, Izd-vo Ministerstva rechnogo flota SSSR, 1951

9. Monthly List of Russian Accessions, Library of Congress, July 1953, Uncl.

2

KOCHANOVSKIY, I.U.

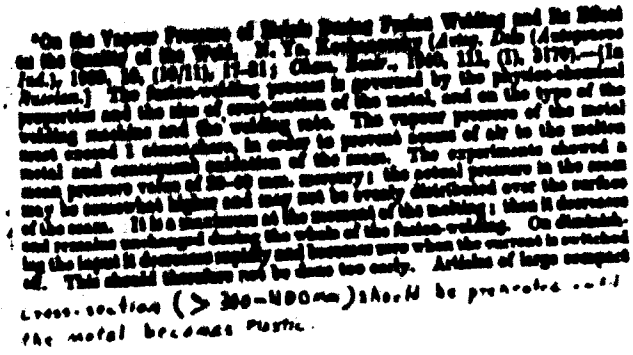
A new symptom in the injury of the frontal lobe. Vopr.neirokhir. no.2:37-39 Mr-Ap '50. (CLML 19:3)

1. Of the Department of Nervous Diseases (Head -- A.V.Triumfov), Naval Medical Academy.

KOCHANOVSKIY N. Ya.

MA

20



cross-section (> 300-400 mm) should be prevented until the metal becomes plastic.

1943

KOCHANOVSKIY, N. YA.

Novye avtomaticheskie ustroistva dlia elektricheskoi dugovoi svarki. Moskva, Gosenergoizdat, 1945. 32 p.

New automatic equipment for electric arc welding.

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

USSR/Electricity - Welding, Electric Welding, Equipment Nov 49

"Consultations," N. Ya. Kochanovskiy, Engr, "Elektrosila" Plant, 1½ pp

"Vest Elektro-Prom" No 11

Replies to reader's queries on electromagnetic and condenser welding. Describes both types of machines and gives examples of their uses, with three diagrams.

[redacted]

157T37

KOCHANOVSKIY, N. YA.

PHASE X TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 583 - X
[Supercedes AID 583 - I]

BOOK Call No.: AF645595

Author: KOCHANOVSKIY, N. YA.
Full Title: RESISTANCE-WELDING MACHINES
Transliterated Title: Mashiny dlya kontaktnoy elektrosvarki

PUBLISHING DATA
Originating Agency: None
Publishing House: State Publishing House for Power Engineering Literature (Gosenergoizdat)
Date: 1954 No. pp.: 408 No. of copies: 8,000
Editorial Staff
Editors: Sarafanov, S. G., Kand. of Tech. Sci., Taz'ba, S. M., Eng.
Appraisers: Nikitin, V. P., Mem. of Acad. of Sci., USSR, Alekseyev, A. A., Prof.

PURPOSE AND EVALUATION: The book is intended for designers and technologists in electric-welding equipment plants, and for engineers and technicians working in the field of resistance welding, as well as for students in universities and technical schools. It can be also helpful to scientific workers in design and construction organizations and in industrial enterprises using resistance welding. The book is written in a clear and precise style and contains a large amount of information on modern resistance-welding equipment and

processes. This work presents a special interest because it deals with Soviet machines and with resistance-welding methods used in the USSR.

TEXT DATA
Coverage: This book deals with the design, operation and performance of resistance-welding machines. Butt welding, flash butt welding, spot welding, projection welding, seam or roll welding are described in detail. The standard and specialized types of resistance-welding machines, the electric and pneumatic devices and the automatic electronic control equipment are discussed at length. The book contains also data on metals and alloys frequently used. Special attention is given to electric-circuit arrangements and to actuating mechanisms of resistance-welding machines and controlling devices. The "Introduction" contains a short historical sketch of the development of resistance welding in Russia. The detailed descriptions of Soviet resistance-welding machines of various marks and types are profusely illustrated and provided with tables of technical specifications and diagrams.

Table of Contents

Mashiny dlya kontaktnoy elektrosvarki AID 583 - X

Mashiny dlya kontaktnoy elektrosvarki AID 583 - X

7/9

8/9

No. of References: 46 Russian, 1935-1952.
Facilities: Leningrad "Elektrik" Plant

9/9

KOCHANOVSKIY, N. YA.

USSR/ Engineering - Welding equipment

Card 1/1 ; Pub. 128 - 9/31

Authors : Kochanovskiy, N. YA.

Title : An apparatus of a new design for electric contact-welding

Periodical : Vest. mash. 10, 44 - 49, Oct 54

Abstract : A description is presented of a newly designed electric contact-welding apparatus produced by the "Elektrik" Factory, for butt, spot and seam-welding operations. Drawings and illustrations, depicting the above mentioned apparatus, are presented and technical data is given. Tables.

Institution : ....

Submitted : ....

KOCHERGIN, K.A.; VILL', V.I., inzhener, retsenzent; KOCHANOVSKIY, N.Ya., kandidat tekhnicheskikh nauk, redaktor; [illegible], redaktor.

[Principles of resistance welding] Osnovy kontaktnoi svarki. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1955. 117 p. (Electric welding) (MLRA 8:5)

KOCHANOVSKIY, N. Ya.

137-58-3-5354

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 126 (USSR)

AUTHOR: Kochanovskiy, N.Ya. (Transl. Ed Note: the name is misspelled "Kochanovkiy" in the abstract, but correctly spelled in the index)

TITLE: Equipment for Resistance Welding (Oborudovaniye dlya kontaktnoy svarki)

PERIODICAL: V sb. Probl. dugovoy i kontakt. elektrosvarki. Kiyev-Moscow, Mashgiz, 1956, pp 278-291

ABSTRACT: A brief summary of some standard and specialized types of resistance welding apparatus developed by the "Elektrik" (The Electrician) plant. Technical characteristics of machines for spot, projections, seam, and butt welding are given together with the characteristics for automatic machines for the welding of flat reinforcement gratings, frames, and girders.

V.Ts.

Card 1/1

Subject : USSR/Engineering AID P - 5243

Card 1/2 Pub. 107-a - 3/9

Author : Kochanovskiy, M. Ya., Cand. of Tech. Sci. (VNIIESO)

Title : New equipment for electric welding

Periodical : Svar. proizv., 8, 11-17, Ag 1956

Abstract : The author describes several new welding machines designed by the All-Union Scientific Research Institute of Electric Welding Equipment (VNIIESO), their specifications and performance. The MTK-0.1 and MTK-2 (1 and 2 kva respectively) machines for spot welding, the MS-0.75 and MS-3 (0.75 and 3 kva) machines for butt-welding of thin ferrous and non-ferrous metal-pieces, and the MTPK-25 spot welding machine for welding silver and metal-ceramic points are fully described. The MTIP-300 and the MTPR-600 are only briefly outlined. (The MTIP spot welding machines of 150, 300, 450 and 600 kva are described by L. B. Zaychik and A. M. Kanin in this

AID P - 5282

Subject : USSR/Engineering

Card 1/2 Pub. 107-a - 18/18

Authors : Kochanovskiy, N. Ya., Kand. of Tech. Sci., K. V. Lyubavskiy, Dr. of Tech. Sci., A. Ye. Korchemkin, Eng. (Members of the Presidium of the Convention)

Title : Convention on welding in the atmosphere of various protective gases.

Periodical : Svar. proizv., 9, 33, S 1956

Abstract : A brief report on Convention Proceedings with reports on welding under protection of argon, helium, carbon dioxide and nitrogen, and other related matters, held in Leningrad, May 8 and 9, 1956.

Institutions: (participating in the Convention) - All-Union Scientific Research Institute of Electrical Welding Equipment (VNIIESO), Scientific Research Institute of Aviation Technology (NIAT), Central Scientific Research Institute

KOCHANOVSKIY, N. YA.

137-58-5-9839

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 139 (USSR)

AUTHOR: Kochanovskiy, N. Ya.

TITLE: The Contribution of Leningrad to the Development of Electric Resistance Welding (Vklad Leningrada v razvitiye elektricheskoy kontaktnoy svarki)

PERIODICAL: V sb.: Svarochnoye proiz-vo. Leningrad, Lenizdat, 1957, pp 103-124

ABSTRACT: A survey is made of the types of machines (M) manufactured by the Leningrad Elektrik Plant for various types of resistance welding. For spot W the plant produces 6 sizes of the stationary MTP M, ranging from 75 to 400 kva, and the suspended MTPG type of 75 to 150 kva. For projection W there are 6 models of the MRP machine in the 100-600 kva range. The series for transverse and longitudinal seam W consists of 8 sizes of M in the MShP and MShPB lines, of 100-200 kva. PISh ignitron controls regulate weld interval and off time for 1 to 19 cycles. Butt-welding M MSM-150-5, MSGA-300, and MSGA-500 of 150, 300, and 500 kva, respectively, are designed to W parts of up to 2500, 5000, and 8000 mm^2 cross-sectional area by continuous flash

Card 1/3

The Contribution of Leningrad (cont.)

welding after preheating. The VNIIESO has developed a number of models of M for spot and butt W of parts of from a few hundredths to 2 mm in thickness for use in the electronics and cable industries, instrument manufacture, and the optical and jewelry industries. Models MTIK-0.1, MTIK-0.25, and MTK-2 are designed for spot W of 0.01-0.4 mm brass. W is by capacitor discharge of stored energy. The MSK-0.1, MS-0.75, and MS-3 M are designed for butt W. The first of these is a capacitor-discharge machine for parts of 0.35-1.0 mm diam, and the others are A-C machines for resistance W. Separate standard interrupters, transformers, ignitron contactors, air and hydraulic control apparatus have been developed for the manufacture of specialized equipment. In this category of specialized equipment are the MTIP-300, MTIP-450-2, and the MTIP-600-2 condenser-discharge spot welders of 300, 450, and 600 kva, respectively, with 1200 mm throat depth for the W of Al alloys of 0.5+0.5 to 4+4 mm thickness. The MTPR-600, with an electrode stroke of up to 120 mm is designed for A-C spot W of Al alloys, the W schedule being controlled by a synchronous interrupter with a device for modulation of the welding current. The MShIR-300 and MShIR-400 condenser-discharge M are manufactured for seam W of light alloys of from 0.8+0.8 to 2+2 mm thickness. Procedures have been developed for the cold welding of Al, Cu, Ni, Pb, Ag, Ti, Zn, and Cu+Al, for which the MKhSK-1 and MKhSA-50 machines with

The Contribution of Leningrad (cont.)

electrode force of up to 45 t have been developed. The following M have been developed for the W of reinforcements for concrete: MTMS-7x35, MTMK-3x100, ATMS-14x75, MTMK-2x150, MTMF-2x150, and ATMS-15x450. In the field of cermet and Ag contact welding for starting and regulating equipment, the MTK-25 spot welder has been developed for the W of OK-12 and OK-15 6-mm diam contacts. This M is electronically controlled. The MSL-200 and MSL-500, of 200 and 500 kva power, respectively, are manufactured for flash butt W. The MSL-200 model is designed for the W of strip 0.8-3.5 mm thick and 30-245 mm wide by continuous flash welding with simultaneous removal of the flash immediately after W.

1. Resistance welding--USSR

V.S.

Card 3/3

SOV/137-58-7-15173

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 179 (USSR)

AUTHORS: Brinberg, I.L., Kochanovskiy, N.Ya., Chernyak, V.S.

TITLE: Modern Welding Equipment and Problems of Its Design (Sovremennoye sostoyaniye i zadachi v oblasti konstruirovaniya svarochnogo oborudovaniya)

PERIODICAL: V sb.: Sovrem. napravleniya v obl. konstruirovaniya tekhnol. oborud. Moscow, Mashgiz, 1957, pp 242-265

ABSTRACT: The design of modern welding equipment (E) must be directed along the lines of further development of such widely employed welding (W) methods as arc, resistance, and electric slag W, as well as gas-flame treatment of metal. An immediate task in mechanization of manual arc welding (in the case of short-run and single-unit production) is the design of universal welding tilters and manipulators with mechanical, pneumatic, hydraulic, and magnetic devices capable of handling stock weighing 0.1-50 t. The design of W E employing electrodes must include provisions for the creation of automatic production lines for continuous manufacture of electrodes. E for automatic submerged and gas-shielded W is described briefly.

Card 1/3

Modern Welding Equipment and Problems of Its Design

together with the most advanced types of design of such E. Recommendations are given for the construction of improved W heads, supporting rollers, trucks, pumps for drawing off of flux, feeding mechanisms, etc. Electric slag W E is examined together with the E supplying the electrical power. Means of further improvement of design of electric slag W E are outlined; they include resistance-slag W, W with laminated and combined electrodes, W of structures with curved seams, building up of metal surfaces by means of W, etc. A survey of modern resistance W E is given. Latest machines for resistance W E is given. Latest machines for resistance W are described briefly; this includes the MTIK-01 machine for spot welding of metal 0.01 to 0.1 mm thick; the ATMS-14 x 75 machine for manufacturing of columns, grids, and frameworks employed in reinforced-concrete structures, and the MShShI-40 machine for seam welding of components made of Al alloys with a thickness varying from 0.8 mm to 2 mm, etc. Goals in the design of resistance W E are presented in detail; they include the following: Creation of three-phase-single-phase power circuitry; employment of direct (rectified) low-frequency current; extensive employment of electronics, semiconductors, and pneumatic-hydraulic devices in the circuits of the W machines; creation of E capable of controlling the quality of welded connections. An abbreviated description of modern E for gas-flame treatment

SOV/137-58-7-15173

Modern Welding Equipment and Problems of Its Design

of metals includes the following topics: Oxygen cutting, gas welding, surface hardening, metallization, gas-flame spraying on of plastics. Requirements that must be satisfied by the newly produced E are formulated. 15 drawings and photographs are included. Bibliography: 29 references.

B.K.

1. Welding--Equipment

Card 3/3

KOCHANOVSKIY, M.Ya., kand.tekhn.nauk

Arc welding equipment. Svar.proizv.no.11:27-31 N '57. (MIRA 10:12)
(Electric welding--Equipment and supplies)

KOCHANOVSKIY, N.Ya., insh.

Electric welding equipment. Vest. elektroprom. 28 no.11:49-54 N '57.
(MIRA 10:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya.
(Electric welding--Equipment and supplies)

KOCHANOVSKIY, N. YA.

135-58-6-2/19

AUTHOR: Kochanovskiy, N.Ya., Candidate of Technical Sciences

TITLE: The Anticipated Development of the Production of Electric Welding Equipment for 1959-1965 (Perspektivy razvitiya proizvodstva elektrosvarochnogo oborudovaniya na 1959-1965 gg)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 6, pp 1-7 (USSR)

ABSTRACT: The author makes a brief general review of new welding methods presently in use in the USSR industry. The general development of the welding industry in the US is mentioned, and the cooperation between the US companies producing welding equipment is pointed out. An emphasis is placed on the necessity of improving the output of Soviet equipment by way of mechanization and automation, to modernize the existing equipment and reduce the number of types of similar-purpose machines, etc. New welding equipment planned for mass production is also given, along with their general characteristics. The planned quantities of welding machines of various types and the general planned production quantity for production in 1957 is given in percentage (tables 3,4,5). The production of special complex machines is estimated to be increased 6-7 times by 1965, as compared with the 1957 output. There are 10

Card 1/2

135-58-6-2/19

The Anticipated Development of the Production of Electric Welding Equipment for 1959-1965

photographs.

ASSOCIATION: VNIIESO

AVAILABLE: Library of Congress

Card 2/2

Kochanovskiy, N.Ya.

28(1) PHASE I BOOK EXPLOITATION SOV/2156

Soveshchaniye po kompleksnoy mekhanizatsii i avtomatizatsii tekhnologicheskikh protsessov. 2nd, 1956.

Avtomatizatsiya mashinostroitel'nykh protsessov; /trudy soveshchaniya/, tom. 1: Goryachaya obrabotka metallov (Automation of Machine-Building Processes; Proceedings of the Conference on Over-All Mechanization and Automation of Technological Process, Vol 1: Hot Metal-Forming) Moscow, 1959. 394 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya.

Resp. Ed.: V.I. Dikushin, Academician; Compiler: V.M. Rashmatov; Ed. of Publishing House: V.A. Rotov; Tech. Ed.: I.F. Kuz'min.

PURPOSE: The book is intended for mechanical engineers and metallurgists.

COVERAGE: The transactions of the Second Conference on the Over-All Mechanization and Automation of Industrial Processes, September 25-29, 1956, have been published in three volumes. This book, Vol. I, contains articles under the general title, Hot Working of Metals. The investigations described in the book were conducted by the Sections for Automation and Hot Working of Metals, under the direction of the following scientists: casting - P.N. Aksenov, D.P. Ivanov and G.M. Orlov; forming - A.I. Tselikov, A.D. Tomlenov and V.T. Meshcherin; welding - G.A. Nikolayev, B.I. Frolov and G.A. Maslov. There are 183 references: 142 Soviet, 34 English, 6 German, and 1 French.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

Card 8/8 TM/ajr 9/23/59

80V/110-59-2-10/21

AUTHOR: Kochanovskiy, N.Ya., Candidate of Technical Sciences

TITLE: The Automation of Fusion Electric Butt Welding (Avtomatizatsiya stykovoy elektrosvarki oplavleniyem)

PERIODICAL: Vestnik Elektropromyshlennosti,1959,Nr 2,pp 37-43(USSR)

ABSTRACT: Fusion butt welding and methods of making it automatic were studied at the 'Elektrik' Works in 1935-40 and later the subject was studied by the Central Scientific Research Institute of Heavy Engineering, the Institute of Electric Welding of the Ukr.Acad.Sci. and other organisations, but still the physical nature of the process was not sufficiently studied and automatic equipment was not developed. In this method of welding voltage is applied to the two parts, which are clamped in the butt welding machine and are slowly brought together. As they make contact the secondary circuit is closed and intense local heating causes the metal to melt at the point of first contact. The pieces are only lightly pressed together so that melting occurs very quickly and the molten metal is thrown out of the gap between the parts. During this process the metal is vapourised and this forms a protective zone that prevents

Card 1/5

The Automation of Fusion Electric Butt Welding

oxidation of the molten metal. For this protection to be effective the rate at which the parts are brought together should be increased steadily until they reach their final positions. Existing views on the physical nature of the process are first briefly described and then the subject is considered in more detail. The parts are first brought together cold and the time required to melt the bridge and throw out liquid metal from the butt varies from 0.001 sec to several cycles according to the area of contact, the applied pressure and the electrical characteristics of the machine. The parts are first brought together and a heavy current commences to flow, as the parts continue to approach one another, and the metal is heated, the area of contact increases and the hot metal may be somewhat constricted to the zone between the parts. The metal is rapidly heated to the molten condition and still higher temperatures are reached in the middle of it so that the bridge bursts, throwing the molten metal outwards. If the process is stopped in this initial stage the approaching surfaces are found to contain hollows ranging from 0.5 to 3 mm deep, from which molten metal has been thrown by

Card 2/5

The Automation of Fusion Electric Butt Welding

the explosion. The maximum depth of hollow during the period of fusion with a secondary voltage of 3.93 V and a welding current of 25000 A is 0.8 mm and with a secondary voltage of 5.4 V and a current of 34000 A, 1.2 mm. Photographs of surfaces on which the process has been stopped in this early stage are given in Fig 2. The appearance of these samples is discussed and it is stated that the shape and size of the bridge is not governed by surface tension or electro-magnetic forces. Factors that have an important influence on the shape of the bridge are the area of contact, the depth of heating, expansion of the metal, the dynamic condition of the metal during the process of boiling and its displacement through interaction between the current in the bridge and that in the welding circuit of the machine. Other factors of somewhat less importance are mentioned. This initial stage is followed by one in which the mating surfaces of the parts are already heated up to the melting point over all the surface and the parts are brought together without application of pressure through the liquid metal. The changes in the nature of the contact as the parts are

brought together are described with reference to Fig 3. During this process the temperature is highest and the depth of melting greatest near the centre of the bridge, and a diagram of temperature distribution in the bridge is given in Fig 4. The way in which the molten metal is thrown out of the bridge is then discussed. Methods of making the welding process automatic are then considered. In the light of the explanation of the process given in the earlier part of the article, the rate of approach of the parts should be varied according to the changes in the metal temperatures. At the first instant, the rate of approach should be minimum. As the mating surfaces heat up the bridges melt more rapidly and the rate of approach is increased. At the very end of the process the rate of approach of the parts should increase sharply so as to create a protective zone of metal vapour. During the welding process the current and voltage are not constant and this complicates automatic control of the process. It seems best to bring the parts together by means of a cam, the profile of which is determined experimentally in such a way that the parts are always brought together slightly more slowly than the

theoretical maximum rate. The method of determining the theoretical rate of approach is explained. Formula (2) gives the power required. Formula (3a) gives the necessary rate of approach of the parts as a function of the temperature. The effects of changes in the rate of approach and rate of energy supply are discussed. Experimentally developed cam profiles are given in Fig 5, curve (a) being used for welding parts in which the ratio of the perimeter to the section is great and curve (b) for parts in which this ratio is small. The process of welding can also be made automatic with a constant rate of approac. provided that the power applied is suitably controlled. The necessary changes in power are briefly described but so far this method of control has not been much used. There are 5 figures and 7 references, 5 of which are Soviet, 1 [redacted] and 1 French

Card 5/5

SUBMITTED: March 19, 1958

25(1,5), 28(1)

SOV/135-59-7-2/15

AUTHOR: Kochanovskiy, N.Ya., Candidate of Technical Sciences

TITLE: The Present State and the Future Development of Resistance Welding Equipment

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 7 pp 3-7 (USSR)

ABSTRACT: The author explains the advantages of resistance welding in mass production which are especially noticeable with comprehensive mechanization and automation of production processes due to the high productivity of resistance welding machines. Resistance welding machines may be easily automated and the welding technology is simple. The number of the resistance welding machines is growing constantly. In 1956, the output of resistant welding machines in the USSR amounted to 33% and 67% of arc-welding machines of the total production volume of electrical welding equipment. In 1957, the total of resistance welding machines was increased to 38%, and in 1958 it was still higher. It is necessary that the output of resistance welding

Card 1/4

The Present State and the Future Development of Resistance Welding Equipment

equipment reaches at least 50% of the total volume of electrical welding equipment. About 60% of the entire resistance welding equipment in the USSR industry are spot-welding machines. Butt-welding machines are used in a considerably lower number (27%), about 30% are seam and specialized resistance welding machines. Presently, the majority of resistance welding equipment is produced with automatic controls. The author presents brief descriptions and photographs of the following resistance welding machines; MShK-3 (for seam welding), MTIP-1000 (for spot-welding of light alloys), MSGR-500-4 (for butt-welding of RR rails), MShBKh-200 (for seam-welding of refrigerator cabinets), MShPK-150-1 (for seam-welding of battery housings), MTM-4x150 (multi-electrode spot-welding machine for stator packs), MTM-2x100 (multi-electrode spot-welding machine for stator packs), MTMT-10x240 (multi-electrode spot-welding machine for Diesel

The Present State and the Future Development of Resistance Welding Equipment

locomotive bodies). Fig. 10 shows the electrical circuit of the MTM-10x240 welding machine. For solving problems of the future development of resistance welding, it is necessary to create and produce specialized equipment and to speed up the developement of planing, design, scientific research and production facilities. The majority of specialized machine units should be produced as multi-electrode machines for spot and seam-welding. For speeding up the development of new specialized welding units, standard parts and machine elements should be developed. The author emphasizes the necessity for standardizing welding-machine parts, especially welding electrodes. As a rule, presently thousands of different types of electrodes are manufactured by industrial installations using these electrodes for their own consumption. The author emphasizes the necessity of organizing a plant or a shop for producing standard electrodes for all

The Present State and the Future Development of Resistance Welding Equipment

existing resistance welding methods. There are 8 photographs and 2 circuit diagram

18(5) SOV/135-59-8-1/24

AUTHORS: Kochanovskiy, N.Ya., Candidate of Technical Sciences, Fedor, Ye.S., Engineer, and Katler, S.M., Candidate of Technical Sciences

TITLE: Welding With Electric Arc Rotating in the Magnetic Field

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 8, pp 1-4 (USSR)

ABSTRACT: The fact that the electric arc rotates in a magnetic field has repeatedly been examined in regard to its utilization for practical purposes in several technical fields. It was found in these investigations that the electric arc is stable only if the spot on the cathode, which is the center of the rotation, remains immovable. The immovability of one of the active spots of the rotating arc limited its practical applicability for welding. In the Scientific Research Institute for Electric Welding Equipment welding devices were developed which had electric arcs with active anode and cathode spots rotating in the magnetic field. As investigations showed the electric arc, of which both

Card 1/5

Welding With Electric Arc Rotating in the Magnetic Field

active spots are rotating, can be produced either between the two parts that are to be welded or between the work piece and an auxiliary electrode. In the first case the two parts, for instance the two pipes 1 and 1' (Figure 1), and the field coils 2 and 2' are arranged coaxially. The coils cause magnetic currents which are inversed and therefore create a radial magnetic field in the gap between the pipes. The axes of the arc and consequently that of the arc current coincide in their direction with the axes of the pipes. The interaction of the axial current of the arc and the radial intensity of the magnetic field create a force which is applied to the arc. The force which is directed tangentially produces a rotating movement of the arc and evenly heats the rims of the pipes. Visually an uninterrupted ring of glowing plasma may be seen. When the welding temperature is reached, the pipes are pressed together. In the second case, the pipes, the copper ring, and the field coils are arranged coaxially. The ring is cooled with

water which is following through the channel (4). The electric arc is produced between the inner surface of the ring (2) and the rims of the pipes. The arc current has radial direction and the magnetic field in the gap between the ring and the pipe's axial direction. From the interaction between the radial arc current and the axial field of given intensity a force results, which is called R_1. Under the influence of this force the arc starts turning and the rims of the pipes are heated. The pipes are pressed together until the necessary temperature is reached. Thin-walled pipes may be welded without pressing. The following part of the article describes in detail: the use of the rotating arc if it burns between the two parts which are to be welded; the heating of the pipe rims; the heating of the rims to the welding temperature and the subsequent pressing; the heating of the front sides of round workpieces with compact section to the welding temperature; the use of a rotating arc burning between the workpiece and an auxiliary electrode.

Welding With Electric Arc Rotating in Magnetic Field

The author comes to the following conclusions: A new method of welding with an electric arc was developed, in which the arc rotates in a magnetic field. This method id distinguished by a simultaneous movement of the anode and the cathode spots. The application of this method makes it unnecessary to use welding heads and burners which have to be moved along the seam, and this makes it much easier to automate the process, especially in places which are narrow and hard to reach. The rotating electric arc makes it possible to weld clumsy seams of pipes with big diameters and thick walls, of workpieces with compact section, of side connections, and of workpieces with other profiles, such as round sections. The welding method can be used for sheet iron, non-ferrous metals, and alloys, applying gas shielding where it it necessary. Welding with electric arc, which is rotating, makes it possible to use feeders of relatively low power. Further research in the new welding process should go in

Card 4/5

the direction of utilizing the arc not only on the periphery of the magnetic field but also inside. There are 7 photographs, 2 tables, 2 diagrams and 5 references, 3 of which are Soviet and 2 English.

ASSOCIATION: VNIIESO

Card 5/5

KOCHANOVSKIY, M.Ya., kand.tekhn.nauk

Automatic control of electric flash butt welding. Vest.elektroprom. 30 no.2:37-43 F '59. (MIRA 12:3)
(Electric welding) (Automatic control)

KOCHANOVSKIY, N. Ya.

PHASE I BOOK EXPLOITATION SOV/5014

Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya

Svarochnoye oborudovaniye; katalog-spravochnik (Welding Equipment; Catalog-Manual) [Moscow] Tsentral'nyy institut nauchno-tekhnicheskoy informatsii elektrotekhnicheskoy promyshlennosti i priborostroyeniya [1960] 359 p. 15,000 copies printed.

Ed.: N. Ya. Kochanovskiy, Candidate of Technical Sciences; Editorial Board: VNIIESO: L. G. Gromyko, I. A. Yegorova, Yu. Ya. Terent'yev, Ye. P. Tolub'yeva; GNTK: P. V. Arifmetchikov; TsINTI: Yu. I. Rodionov; Ed.: TsINTI: E. V. Leskova; Tech. Eds.: V. I. Balashov, and O. Z. Burlakova.

PURPOSE: This catalog-manual is intended for engineers and technicians in welding establishments, personnel of design, construction, and scientific research organizations, students and teachers in schools of higher technical education and tekhnikums, and personnel of sales and supply organizations.

Card 1/9

Card 2/9

VLADIMIRSKIY, T.A., doktor tekhn.nauk; VROBLEVSKIY, R.V., insh.; GLUBOV, L.V., insh.; GODIN, V.M., kand.tekhn.nauk; GUZOV, S.G., insh.; GULYAYEV, A.I., insh.; KERSHOV, L.K., insh.; KOCHANOVSKIY, N.Ya., kand.tekhn.nauk; LYUBAVSKIY, K.V., prof., doktor tekhn.nauk; PATON, B.Ye., akademik, prof., doktor tekhn. nauk; RABINOVICH, I.Ya., kand.tekhn.nauk; RADASHKOVICH, I.M., insh.; RYKALIN, N.N., prof., doktor tekhn.nauk; SPEKTOR, O.Sh., insh.; KHRENOV, K.K., akademik, prof., doktor tekhn.nauk; CHERNYAK, V.S., insh.; CHULOSHNIKOV, P.L., insh.; SHORSHOROV, M.Kh., kand.tekhn.nauk; BRATKOVA, O.N., prof., doktor tekhn.nauk, nauchnyy red.; ERLIKHMAN, I.L., kand.tekhn.nauk, nauchnyy red.; GEL'MAN, A.S., prof., doktor tekhn.nauk, nauchnyy red.; KONDRATOVICH, V.M., insh.; nauchnyy red.; KRASOVSKIY, A.I., kand.tekhn.nauk, nauchnyy red.; SKAKUN, G.P., kand.tekhn.nauk; nauchnyy red.; SOKOLOV, Ye.V., insh., red.; IVANOVA, K.N., insh., red.izd-va; SOKOLOVA, T.F., tekhn.red.

[Welding handbook] Spravochnik po svarke. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.1. 1960. 556 p.
(MIRA 14:1)

1. AN USSR (for Paton, Khrenov). 2. Chlen-korrespondent AN SSSR (for Rykalin, Khrenov).
(Welding--Handbooks, manuals, etc.)

S/135/60/000/006/002/007
A104/A029

AUTHOR: Kochanovskiy, N.Ya., Candidate of Technical Sciences

TITLE: Activity of VNIIESO in Automation of Welding Equipment

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 6, pp. 6 - 10

TEXT: The author gives a brief review on achievements of the VNIIESO on mechanization and automation of welding and technical improvements of welding equipment. In the very near future the industry will be supplied with a larger number of semiconductors, rectifiers and fixed-rating motor-generators for gas-shielded welding. The production of welding machines is still behind of equipment production and every effort must be made to promote automation. There is a shortage of automatic arc welding machines and high-capacity butt welders. The following types of automatic welding machines were recently developed by the VNIIESO and are being produced by the "Elektrik" Plant: a-c argon arc welding units with non-consumable УДАР-300 (UDAR-300) and УДАР-500 (UDAR-500) tungsten electrodes, semi-automatic ПДПГ-300 (PDPG-300) and full automatic АДПГ-500 (ADPG-500) for gas-shielded welding units with consumable electrodes, 300-amp d-c semiautomatic welders with adjustable wire rate of 1.5 - 16 m/min. ADPG-500 can

Card 1/3

Activity of VNIIESO in Automation of Welding Equipment

be converted for gas-shielded welding of ferrous and non-ferrous metals and for flux-shielded welding. ADPG-500-3 was designed for welding of aluminum alloys and differs from ADPG-500 by a special welding-head. АДФ-500 (ADF-500) flux-shielded welder is equipped with a changeable welding-head. АДПГ-300 (ADPG-300) for non-consumable tungsten electrodes and filler wire is equipped with an automatic feeder. ПДА-180 (PDA-180) and ПДА-300 (PDA-300) semi-automatic welders for welding of light alloys with consumable electrodes are fed by ПСГ-500 (PSG-500) converters with fixed volt-ampere rating. The Tbilisi Plant "Elektrosvarka" produces three types of АДК-500 (ADK-500) gas- or flux-shielded automatic welders for vertical, horizontal or sloped welding of circular or cylindrical seams. In designing new standardized contact welding equipment particular attention was paid to automation and capacity increase. A series of medium-powered МТПР (MTPR) spot welders developed by the VNIIESO have a pneumatic pressure feed, radial electrode movement and are controlled by electronic time regulators. A series of spot and seam welders of 400 - 1,000 kva are suitable for light alloys. VNIIESO designed a number of special installations on which welding and all auxiliary operations are automated. A МТМТ-10Х240 (MTMT-10X240) multi-electrode